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     FILE 'HCAPLUS' ENTERED AT 09:19:20 ON 17 FEB 2010
L1          1344 S BRANCHING ENZYME
L2        205564 S STARCH OR AMYLOSE OR AMYLOPECTIN
L3          1001 S L1 AND L2
L4         11449 S GELATINIZED OR GELATINIZE OR GELATINIZATION
L5            30 S L3 AND L4
L6             7 S L5 AND (PY<2000 OR AY<2000 OR PRY<2000)
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=> file hcaplus
COST IN U.S. DOLLARS                                SINCE FILE      TOTAL
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FULL ESTIMATED COST                                     0.22       0.22

FILE 'HCAPLUS' ENTERED AT 09:19:20 ON 17 FEB 2010
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FILE COVERS 1907 - 17 Feb 2010  VOL 152 ISS 8
FILE LAST UPDATED: 16 Feb 2010  (20100216/ED)
REVISED CLASS FIELDS (/NCL) LAST RELOADED:  Dec 2009
USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE:  Dec 2009

HCAplus now includes complete International Patent Classification (IPC)
reclassification data for the third quarter of 2009.

CAS Information Use Policies apply and are available at:

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This file contains CAS Registry Numbers for easy and accurate
substance identification.

=> s branching enzyme
         64397 BRANCHING
        923788 ENZYME
L1        1344 BRANCHING ENZYME
                (BRANCHING(W)ENZYME)

=> s starch or amylose or amylopectin
        198935 STARCH
         14623 AMYLOSE
          7901 AMYLOPECTIN
L2      205564 STARCH OR AMYLOSE OR AMYLOPECTIN

=> s l1 and l2 and l3
L3 NOT FOUND
The L-number entered could not be found.  To see the definition
of L-numbers, enter DISPLAY HISTORY at an arrow prompt (=>).

=> s l1 and l2
L3        1001 L1 AND L2

=> s gelatinized or gelatinize or gelatinization
          4434 GELATINIZED
           661 GELATINIZE
          7380 GELATINIZATION
L4       11449 GELATINIZED OR GELATINIZE OR GELATINIZATION
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L5          30 L3 AND L4

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      20131306 PY<2000
       3716401 AY<2000
       3180787 PRY<2000
L6           7 L5 AND (PY<2000 OR AY<2000 OR PRY<2000)

=> d l6 1-7 ti abs bib

L6   ANSWER 1 OF 7  HCAPLUS  COPYRIGHT 2010 ACS on STN
TI   Starch branching enzyme II (SBEII-1 and
     SBEII-2) isoforms from wheat, cDNA, transgenic plants, and altering
     starch properties for food use
AB   A class of wheat SBEII genes, SBEII-1, recombinant protein expression in
     transgenic plants, and its use in altering properties of starch
     produced by a plant are claimed.  Starch properties include the
     gelatinization onset and/or peak temperature  The use of such
     starch with altered properties in food stuff, particularly bakery
     products is also claimed.  CDNA clones for SBEII were isolated and
     sequenced.  Those clones were divided into two sub-classes, SBEII-1 and
     SBEII-2 having sequence homol. to maize SBEIIb and SBEIIa, resp.  These
     genes were mapped to the long arm of wheat group 2 homologous chromosomes.
     Some of those isoforms were expressed as recombinant protein in wheat.
     Differential scanning calorimetry studies showed that starch
     produced in transgenic wheat transformed with expression construct for
     SBEII displayed higher onset, peak, and end temperature for
     gelatinization.
AN   2000:191230  HCAPLUS <<LOGINID::20100217>>
DN   132:247996
TI   Starch branching enzyme II (SBEII-1 and
     SBEII-2) isoforms from wheat, cDNA, transgenic plants, and altering
     starch properties for food use
IN   Goldsbrough, Andrew; Colliver, Steve
PA   Plant Breeding International Cambridge Ltd., UK
SO   PCT Int. Appl., 198 pp.
     CODEN: PIXXD2
DT   Patent
LA   English
FAN.CNT 1
     PATENT NO.          KIND   DATE        APPLICATION NO.        DATE
     --------------      ----   --------    -------------------    --------
PI   WO 2000015810        A1    20000323    WO 1999-GB3011         19990909 <--
         W:  AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU,
             CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL,
             IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD,
             MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK,
             SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW
         RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK,
             ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG,
             CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
     AU 9958725            A     20000403    AU 1999-58725          19990909 <--
     AU 767103             B2    20031030
     EP 1117814            A1    20010725    EP 1999-946307         19990909 <--
         R:  AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
             IE, SI, LT, LV, FI, RO
     HU 2001003618         A2    20020128    HU 2001-3618           19990909 <--
     HU 2001003618         A3    20031229
     US 6730825            B1    20040504    US 2001-786480         20010917 <--
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     US 20040216188         A1    20041028    US 2004-818770          20040406 <--
     US 7217857             B2    20070515
     US 20080064864         A1    20080313    US 2007-788837          20070419 <--
     US 7465851             B2    20081216
PRAI EP 1998-307337         A     19980910  <--
     WO 1999-GB3011         W     19990909  <--
     US 2001-786480         A3    20010917
     US 2004-818770         A3    20040406
ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT
OSC.G   3     THERE ARE 3 CAPLUS RECORDS THAT CITE THIS RECORD (3 CITINGS)
RE.CNT  4     THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
              ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6   ANSWER 2 OF 7  HCAPLUS  COPYRIGHT 2010 ACS on STN
TI   Consequences of antisense RNA inhibition of starch
     branching enzyme activity on properties of potato
     starch
AB   Antisense constructs containing cDNAs for potato starch
     branching enzyme (SBE) were introduced into potato
     (Solanum tuberosum L.). A population of transgenic plants were generated
     in which tuber SBE activity was reduced by between 5 and 98% of control
     values. No significant differences in amylose content or
     amylopectin branch length profiles of transgenic tuber starches
     were observed as a function of tuber SBE activity. Starches obtained from
     low SBE activity plants showed elevated phosphorus content. 31P-NMR anal.
     showed that this was due to proportionate increases in both 3- and
     6-linked starch phosphates. A consistent alteration in
     starch gelatinization properties was only observed when the
     level of SBE activity was reduced to below .apprx.5% of that of control
     values. Starches from these low SBE activity plants showed increases of
     up to 5°C in d.s.c. peak temperature and viscosity onset temperature  Studies
     on melting of crystallites obtained from linear (1 →
     4)-α-D-glucan oligomers suggest that an average difference of double
     helix length of about one glucose residue might be sufficient to account
     for the observed differences in gelatinization properties.  It is
     postulated that the modification of gelatinization properties at
     low SBE activities is due to a subtle alteration in amylopectin
     branch patterns resulting in small changes in double helix lengths within
     granules.
AN   1998:508745  HCAPLUS <<LOGINID::20100217>>
DN   129:214130
OREF 129:43447a,43450a
TI   Consequences of antisense RNA inhibition of starch
     branching enzyme activity on properties of potato
     starch
AU   Safford, Richard; Jobling, Steve A.; Sidebottom, Chris M.; Westcott, Roger
     J.; Cooke, David; Tober, Karen J.; Strongitharm, Barbara H.; Russell,
     Alison L.; Gidley, Michael J.
CS   Biosciences Division, Unilever Research, Sharnbrook, MK 441LQ, UK
SO   Carbohydrate Polymers (1998), 35(3-4), 155-168
     CODEN: CAPOD8; ISSN: 0144-8617
PB   Elsevier Science Ltd.
DT   Journal
LA   English
OSC.G   60    THERE ARE 60 CAPLUS RECORDS THAT CITE THIS RECORD (60 CITINGS)
RE.CNT  38    THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD
              ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6   ANSWER 3 OF 7  HCAPLUS  COPYRIGHT 2010 ACS on STN
TI   Manufacture of gelatinized starch liquid with high
     transparency
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AB The title liquid, when incorporated into food-based oils or higher fatty acid alkali salts causing no discoloration and odor due to oxidative deterioration, is obtained from starch degradation products having >50% fraction with mol. weight range of 20,000-2,500,000, starch degradation products having DE (dextrin equiv) of 1-20, or starch degradation products having cyclic structure and mol. weight of 8000-800,000. Starch degradation products with cyclic structure can be formed by treating a starch compound or mixture with branching enzymes.

AN 1998:42073 HCAPLUS <<LOGINID::20100217>>

DN 128:129399

OREF 128:25397a,25400a

TI Manufacture of gelatinized starch liquid with high transparency

IN Nakamura, Hiroyasu; Hama, Yoshiaki; Okamoto, Harumi; Miyaki, Yasutomo

PA Ezaki Glico Co., Japan

SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 10008026	A	19980113	JP 1996-180061	19960619 <--
	JP 3025869	B2	20000327		
PRAI	JP 1996-180061		19960619	<--	

OSC.G 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD (1 CITINGS)

L6 ANSWER 4 OF 7 HCAPLUS COPYRIGHT 2010 ACS on STN

TI Starch biosynthesis and modification of starch structure in transgenic plants

AB Starch is synthesized through the ADP-glucose pathway, involving the 3 enzymes ADP-glucose pyrophosphorylase, starch synthase, and starch-branching enzyme. ADP-glucose pyrophosphorylase is the key enzyme of the pathway, determining the flux of C into starch. It generates ADP-glucose, which is the substrate for the starch synthases, from glucose-1-phosphate and ATP releasing pyrophosphate. The enzyme is stimulated by 3-phosphoglycerate and inhibited through inorg. phosphate. The starch synthases, which catalyze the transfer of glucose from ADP-glucose to the nonreducing end of a growing α-1,4-glucan, are divided into 2 classes, the granule-bound starch synthases (GBSS) and the soluble starch synthases (SS). In both classes several isoforms were described from many different plant species. The branching enzyme, which introduces branch points into the amylopectin, can also occur in different isoforms. Other enzymes present in plants, which also act on α-1,4-glucans, such as the starch phosphorylases, disproportionating enzyme and different starch hydrolases, might also be important for determining the starch structure and, therefore, its processibility. Many aspects of starch synthesis are not fully understood to date. Starch metabolism can be manipulated through genetic engineering, either by the ectopic expression of different heterologous genes, or through the repression of the expression of endogenous genes using antisense RNA technol. This not only allows the functional anal. of starch biosynthetic proteins, but also the manipulation of starch structure in order to widen its industrial applications. In this way many different potato lines were generated, containing either different amts. of starch, or which synthesize a structurally modified starch. These structural changes relate to the amylose content, the phosphate content, or the gelatinization and gelation characteristics of the starch

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AN 1997:568887 HCAPLUS <<LOGINID::20100217>>
DN 127:261734
OREF 127:51129a,51132a
TI Starch biosynthesis and modification of starch structure in transgenic plants
AU Kossmann, J.; Buttcher, V.; Abel, G. J. W.; Duwenig, E.; Emmermann, M.; Frohberg, C.; Lloyd, J. R.; Lorberth, R.; Springer, F.; Welsh, T.; Willmitzer, L.
CS Max-Planck-Institut Molekulare Pflanzenphysiologie, Golm, D-14476, Germany
SO Macromolecular Symposia (1997), 120(Functional Polysaccharides II), 29-38
CODEN: MSYMEC; ISSN: 1022-1360
PB Huethig & Wepf
DT Journal
LA English
OSC.G 5 THERE ARE 5 CAPLUS RECORDS THAT CITE THIS RECORD (5 CITINGS)

L6 ANSWER 5 OF 7 HCAPLUS COPYRIGHT 2010 ACS on STN
TI Physical association of starch biosynthetic enzymes with starch granules of maize endosperm. Granule-associated forms of starch synthase I and starch branching enzyme II
AB Antibodies were used to probe the degree of association of starch biosynthetic enzymes with starch granules isolated from maize (Zea mays) endosperm. Graded washings of the starch granule, followed by release of polypeptides by gelatinization in 2% sodium dodecyl sulfate, enables distinction between strongly and loosely adherent proteins. Mild aqueous washing of granules resulted in near-complete solubilization of ADP-glucose pyrophospyorylase, indicating that little, if any, ADP-glucose pyrophosphorylase is granule associated In contrast, all of the waxy protein plus significant levels of starch synthase I and starch branching enzyme II (BEII) remained granule associated Stringent washings using protease and detergent demonstrated that the waxy protein, more than 85% of total endosperm starch synthase I protein, and more than 45% of BEII protein were strongly associated with starch granules. Rates of polypeptide accumulation within starch granules remained constant during endosperm development. Soluble and granule-derived forms of BEII yielded identical peptide maps and overlapping tryptic fragments closely aligned with deduced amino acid sequences from BEII cDNA clones. These observations provide direct evidence that BEII exists as both soluble and granule-associated entities. Thus, it is concluded that each of the known starch biosynthetic enzymes in maize endosperm exhibits a differential propensity to associate with, or to become irreversibly entrapped within, the starch granule.
AN 1996:436720 HCAPLUS <<LOGINID::20100217>>
DN 125:81944
OREF 125:15407a,15410a
TI Physical association of starch biosynthetic enzymes with starch granules of maize endosperm. Granule-associated forms of starch synthase I and starch branching enzyme II
AU Mu-Forster, Chen; Huang, Rongmin; Powers, Joseph R.; Harriman, Robert W.; Knight, Mary; Singletary, George W.; Keeling, Peter L.; Wasserman, Bruce P.
CS Dep. Food Sci., Rutgers Univ., New Brunswick, NJ, 08903-0231, USA
SO Plant Physiology (1996), 111(3), 821-829
CODEN: PLPHAY; ISSN: 0032-0889
PB American Society of Plant Physiologists
DT Journal

LA English
OSC.G 82 THERE ARE 82 CAPLUS RECORDS THAT CITE THIS RECORD (82 CITINGS)

L6 ANSWER 6 OF 7 HCAPLUS COPYRIGHT 2010 ACS on STN
TI Mutant genes at the r and rb loci affect the structure and physico-chemical properties of pea seed starches
AB Mutant genes at two loci, r and rb, known to encode genes affecting the starch biosynthetic pathway, were studied for their effect on the structure and gelatinization of pea seed starches. Comparisons were made using starches from four lines (RRRbRb, rrRbRb, RRrbrb, and rrrbrb), near-isogenic except for genes at these two loci. All the starches had C-type x-ray diffraction patterns, but different contents of 'A' and 'B' polymorphs. The presence of a mutation at either locus increased the 'B' polymorph content in the starches, although the influence of the r mutation was much greater than that of rb. Differences were discovered in the crystalline structure of the rrRbRb starch which correlated with a high content of amorphous phase as well as with the changes in amylopectin structure. In addition, changes in the crystalline structure of this sample correlated with a lack of cooperative transition during starch gelatinization in excess water. The RRrbrb starch had a greatly increased enthalpy of gelatinization in excess water compared with the wild-type starch. It is proposed that this effect is connected with specific charge interactions between the mols. in the starch granule. The rrrbrb starch had parameters of crystalline structure and gelatinization which reflected the different influences of the two genes. With regard to gelatinization, this starch had relatively wide cooperative transition and low enthalpy and a very high peak temperature of transition.
AN 1996:55346 HCAPLUS <<LOGINID::20100217>>
DN 124:85197
OREF 124:16025a,16028a
TI Mutant genes at the r and rb loci affect the structure and physico-chemical properties of pea seed starches
AU Bogracheva, T. Ya.; Davydova, N. I.; Genin, Ya. V.; Hedley, C. L.
CS Inst. Biochem. Phys., RAS, Moscow, Russia
SO Journal of Experimental Botany (1995), 46(293), 1905-13
CODEN: JEBOA6; ISSN: 0022-0957
PB Oxford University Press
DT Journal
LA English
OSC.G 17 THERE ARE 17 CAPLUS RECORDS THAT CITE THIS RECORD (17 CITINGS)

L6 ANSWER 7 OF 7 HCAPLUS COPYRIGHT 2010 ACS on STN
TI Characterization of starch produced by suspension cell cultures of Indica rice (Oryza sativa L.)
AB Suspension cultures of rice (O. sativa), initiated from seed, produced significant amts. of starch. Starch accumulated in the cultured cells throughout the growth phase and reached a maximum of 7% of the cell dry weight at stationary phase. Starch was present in compound granules which were birefringent under polarized light. Suspension-culture starch had a higher amylose content and a lower gelatinization temperature than rice grain starch . Addnl., starch branching enzyme, an enzyme involved in starch biosynthesis, was characterized by anion exchange chromatog. in culture cells and endosperm. Culture cells had at least 1 major form of starch branching enzyme which differed from the multiple enzyme forms present in endosperm.
AN 1989:21211 HCAPLUS <<LOGINID::20100217>>
DN 110:21211

OREF 110:3565a,3568a
TI Characterization of starch produced by suspension cell cultures of Indica rice (Oryza sativa L.)
AU Landry, Laurie G.; Smyth, D. A.
CS Tech. Cent., Gen. Foods Corp., Tarrytown, NY, 10591, USA
SO Plant Cell, Tissue and Organ Culture (1988), 15(1), 23-32
CODEN: PTCEDJ; ISSN: 0167-6857
DT Journal
LA English